

METROSIDEROS POLYMORPHA (MYRTACEAE) AND ITS VARIATIONS  
HAWAIIAN PLANT STUDIES 88

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How to classify the common Hawaiian species of Metrosideros is a problem that confronts the botanists today. It is not a new problem, as every close student of the Hawaiian flora has been confronted by it. It is noteworthy that the first botanist to collect and publish on them, Charles Gaudichaud, named the species Metrosideros polymorpha (1829: 482), and described three varieties. In his discussion of the vegetation (p. 99) he wrote, "Rien au monde, en effet, n'est plus remarquable que le metrosideros polymorpha, a feuilles lineaires vers le sommet de la montagne, successivement lineaires-lancéolées, lancéolées, ovales, obovales, elliptiques, arrondies, même cordiformes, à mesure qu'on descend, en qui, de glabres et luisantes qu'elles étoient primitivement, deviennent pubescentes, velues, et de plus en plus tomentueuses." In 1819 on the voyage of the Uranie, Gaudichaud botanized on Hawaii, Maui, and Oahu for a total of seven days. In this short time he made large collections, and from 1826-1830 published on his discoveries on this world voyage. One after another, Gray, Mann and Brigham, Wawra, Hillebrand, Heller, Hochreutiner, Rock, and Skottsberg studied the Hawaiian flora, and published on the classification of Metrosideros. The most elaborate, and the standard, treatment was by Rock (1917). He considered the Hawaiian trees conspecific with M. collina (J. R. & G. Forst.) Gray, of Tahiti. Under this he grouped the Hawaiian ones in subspecies polymorpha (Gaud.) Rock, and under it recognized ten varieties. This classification was generally accepted, but Skottsberg (1944: 402-409) reestablished M. polymorpha as the common Hawaiian species, and described several new taxa. Also he raised Rock's varieties to subspecies, but then in his discussion, disclaimed them as new combinations. Consequently, by the provisions of ICBN, Article 34, his new combinations are invalid.

Subsequently, the monographer, J. W. Dawson (1970: 445), restricted M. collina to its type locality, Tahiti, and to Rarotonga. The Hawaiian one which is dominant in the forests, he reestablished as the species M. polymorpha Gaud.

When the writer published his List of Flowering Plants in Hawaii (1973) the local Metrosideros problem had not been resolved, so the two alternative arrangements were printed (pp. 253-254), without indicating a choice between them.

Now, on accepting Dawson's treatment, aside from M. macropus, M. rugosa, M. tremuloides, and

M. waialealae, all the remaining local variants of Metrosideros are to be placed under M. polymorpha. To make them available, the following transfers are here proposed:

M. polymorpha Gaud., Bot. Voy. Uranie 482, 1829;  
Atlas Pl. 108, 1826.

var. polymorpha, Hawaiian Islands.

var. glaberrima (Lévl.) comb. nov.

Nania polymorpha (Gaud.) Lévl., var. glaberrima Lévl., Fedde Repert. 10: 149, 1911.

M. collina (J. R. & G. Forst.) Gray, subsp. polymorpha (Gaud.) Rock, var. glaberrima (Lévl.) Rock, Hawaii Bd. Agric. & For., Bot. Bull. 4: 69, pl. XXIX, 1917.

Holotype: Oahu, Punaluu, maio 1910, Faurie 35.

var. glabrifolia (Heller) comb. nov.

Nani(a) glabrifolia Heller, Minn. Bot. Stud. 1: 866, 1897.

Holotype: Kauai, above Waimea, 4,000 ft. elev., Sept. 10-11, 1895, Heller 2,821.

forma obovate (Skottsb.) comb. nov.

M. polymorpha Gaud., var. glabrifolia (Heller) St. John, forma obovata Skottsb., Goteb. Bot. Trädg., Meddel. 15: 404, 1944.

Holotype: West Maui, Honokahua-Amalu ridge, above Haelaau, 1/8/38, C. Skottsberg 2,748 (GOTH).

var. haleakalensis (Rock) comb. nov.

M. collina (J. R. & G. Forst.) Gray, subsp. polymorpha (Gaud.) Rock, var. haleakalensis Rock, Hawaii. Bd. Agric. & For., Bot. Bull. 4: 56, pl. XXI, 1917.

Holotype: Maui, Haleakala, gulches back of Puunianiau Crater, 6,500-7,000 ft elev., Oct. 1910, J. F. Rock 8,593 (BISH).

var. hemilanata (Hochr.) comb. nov.

M. collina (J. R. & G. Forst.) Gray, var. hemilanata Hochr., Candollea 2: 456, 1925.

Syntypes: Kauai, Rock, var.  $\delta$  and Gray var.  $\phi$ .

var. imbricata (Rock) comb. nov.

M. collina (J. R. & G. Forst.) Gray, subsp. polymorpha (Gaud.) Rock, var. imbricata Rock, Hawaii Bd. Agric. & For., Bot. Bull. 4: 49, pl. XVII, 1917.

Syntypes: Sandwich or Hawaiian Islands, Gaudichaud,

Seemann, U. S. Exploring Expedition (GH).

var. incana (Lévl.) Rock,

forma lurida (Rock) comb. nov.

M. collina (J. R. & G. Forst.) Gray, subsp.

polymorpha (Gaud.) Rock, var. incana (Lévl.)

Rock, forma lurida Rock, Hawaii Bd. Agric. & For., Bot. Bull. 4: 54, pl. XX, 1917.

Holotype: Molokai, above Kamolo, April 1910,  
J. F. Rock 7,021 (BISH).

forma psilophylla (Skottsb.) comb. nov.

M. polymorpha Gaud., subsp. incana (Lévl.)

Skottsb. (invalid), forma psilophylla

Skottsb., Goteb. Bot. Trädg., Meddel. 15: 406, 1944.

Holotype: West Maui, Puu Kukui, 1,750 m alt.,  
9/10/22, Skottsberg 767 (GOTH).

var. macrophylla (Rock) comb. nov.

M. collina, subsp. polymorpha (Gaud.) Rock,

var. macrophylla Rock, Hawaii Bd. Agric. & For., Bot. Bull. 4: 58, pl. XXII, 1917.

Holotype: Hawaii, Volcano Road, Olaa-Mountain View, 1,200-1,500 ft elev., April 20-24, 1916, J. F. Rock 12,630 (BISH).

var. micrantha var. nov.

M. polymorpha Gaud. subsp. micrantha Skottsb., Goteb. Bot. Trädg., Meddel. 15: 407, 1944, this epithet invalid since it was not accepted by its author.

Syntypes: Hawaii Island, Skottsberg 1977; 451; 452; 453; and 430 (GOTH).

var. Newellii (Rock) comb. nov.

M. collina (J. R. & G. Forst.) Gray, subsp. polymorpha (Gaud.) Rock, var. Newellii Rock, Hawaii. Bd. Agric. & For., Bot. Bull. 4: 58, pl. XXIII, 1917.

Lectotype: Hawaii, Hilo, Feb. 1916, J. F. Rock 12,627 (BISH), here chosen, being the sheet illustrated by Rock, as a photo, (pl. XXIII).

var. prostrata (Rock) comb. nov.

M. collina (J. R. & G. Forst.) Gray, subsp. polymorpha (Gaud.) Rock, var. prostrata Rock, forma prostrata, Hawaii Bd. Agric. & For., Bot. Bull. 4: 61, 64, pl. XXV, 1917.

Lectotype: Molokai, Kawela swamp, March 17, 1910, J. F. Rock 6,097 (BISH), here chosen, since it was the one illustrated by Rock (pl. XXV).

forma strigosa (Rock) comb. nov.

M. collina (J. R. & G. Forst.) Gray, subsp.  
polymorpha (Gaud.) Rock, var. prostrata,  
forma strigosa Rock, Hawaii Bd. Agric. &  
For., Bot. Bull 4: 64, pl. XXVI, 1917.

Holotype: Hawaii, Kohala Mts., June 1910,

J. F. Rock 8,414 (BISH).

#### Literature Cited

- Dawson, J. W., 1970. Pacific Capsular Myrtaceae 2. The Metrosideros Complex: M. collina Group. Blumea 18: 441-445.
- Gaudichaud, Charles, 1826-1830. Voyage autour du monde sur les corvettes l'Uranie et la Physicienne, 1817-1820. Botanique i-vii, 1-522. 1826, Atlas 1-22, pl. 1-120.
- Rock, Joseph F. 1917. The Ohia Lehua Trees of Hawaii. Hawaii Bd. Agric. & For., Bot. Bull. 4: 1-76, pl. I-XXXI.
- St. John, Harold, 1973. List and Summary of the Flowering Plants in the Hawaiian Islands. Pacif. Trop. Bot. Gard., Mem. 1: 1-519.